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CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society Of America

Vol. XXI NOV.-DEC., 1949 No. 6

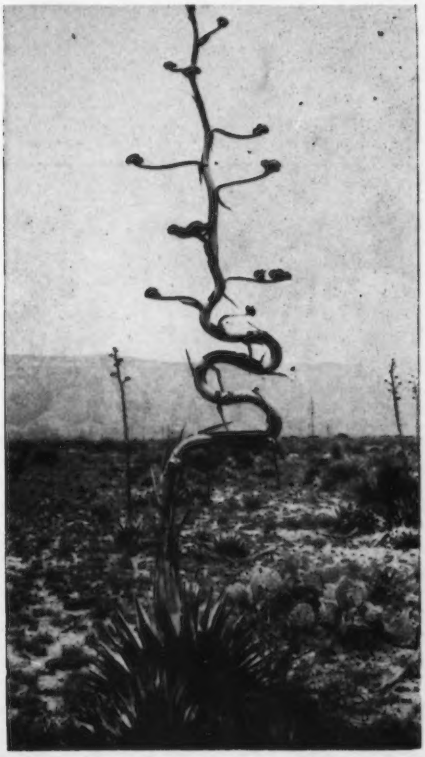

FIG. 103. Unusual growth of a Mescal. See pg. 166.

CACTUS AND SUCCULENT JOURNAL

Published and Owned by the Cactus and Succulent Society of America, Inc., Box 101, Pasadena 16, California. A magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. North and South America $3.00 per year; foreign $3.50 by international money order. Mail application to SCOTT HASELTON, Editor, Box 101, Pasadena 16, Calif. *Editorial Staff:* THE ENTIRE SOCIETY. Entered as Second Class Matter at Pasadena, Calif., under act of March 3, 1879. Published bi-monthly. We reserve the right to accept or reject advertising or articles sent to this JOURNAL.

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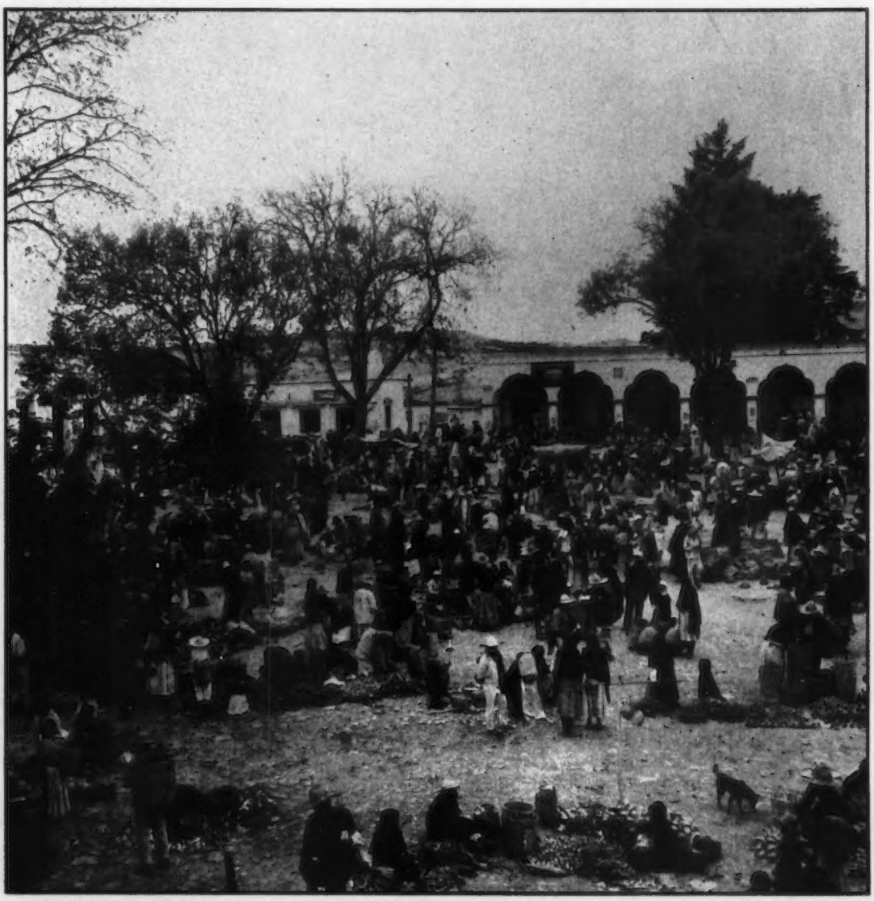


FIG. 104. Partial view of the plaza, Tlaxiaco, on market day. The Saturday market day scene here is unique and of absorbing interest.

FIG. 105
Echeveria gigantea growing at top of a cliff, 5 kilometers south-east of Tlaxiaco. Altitude approximately 7500 ft. Plant at upper right is a Hechtia.

ECHEVERIA GIGANTEA

By T. MACDOUGALL

In the dry, rocky, limestone hills and ridges near Tlaxiaco, Oax. *Echeveria gigantea* may be found growing associated with a large shrubby Sedum closely related to *S. dendroideum*. These two succulents bloom in winter and the flowers, along with those of several orchid species and bromels are much used to adorn altars to the "Niño" during the period of the "Posadas" preceding Christmas.

The rosette leaves of *Echeveria gigantea* are apple green, slightly glaucous, and have a narrow reddish border. The leaves on all plants are more or less undulate, and decorative individuals may be found in which this character, greatly developed, is combined with ruffled margins to the leaf.

Echeveria gigantea was described by Rose from plants collected in 1907 near San Luis Tultitlanapa, Pue., by J. A. Purpus. Has anybody rediscovered San Luis Tultitlanapa?

FIG. 106

Echeveria gigantea growing on a dry wall in Tlaxiaco. Myriads of roseate flowers on giant stems!

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUESTED BY THE ACT OF CONGRESS OF AUGUST 24, 1912. Of Cactus and Succulent Journal, published monthly at Pasadena, for October, 1948, State of California, County of Los Angeles.

Before me, a notary in and for the State and county aforesaid, personally appeared Scott E. Haselton, who, having been duly sworn according to law, deposes and says that he is the Editor-Publisher of the CACTUS AND SUCCULENT JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Scott E. Haselton, Box 101, Pasadena.

2. That the owner is: CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. Cactus and Succulent Society is a nonprofit organization and issues no stock.

SCOTT E. HASELTON.

Sworn to and subscribed before me this 30th day of September, 1949. WM. GOLDSBURRS, *Notary.*

Binding Journals

You may send in your Journals for binding after January 1st. Volume XXI as well as back volumes may be bound at $2.00 per volume (please add 25c per volume for foreign countries). Add sales tax for California orders. Please mail Journals to Abbey Garden Press, 132 West Union Street, Pasadena, California. No volumes can be received after January 31, 1950.

FIG. 107. *Coryphantha oklahomensis* sp. nov. Photo by Jim Slack.

A NEW SPECIES OF CORYPHANTHA

By MARION SHERWOOD LAHMAN

Plant cespitose, forming clusters of from few to many stems, according to age.

Stems averaging four inches long, 3¼ in. broad; tubercles dark green, loosely arranged, ¾ in. long. Radial spines 16-20, fine, white, some with brown tips; centrals 6-7, stouter, brown with age.

Flowers 1½-2 in. wide, outer segments strongly ciliate, silvery green to white; inner segments pale pink or whitish with pink tips; stigmas 9-10, blunt, edges revoluate, magenta; filaments magenta. June.

Fruit an oblong, smooth green berry; seeds black.

Type locality, Caddo Co., Oklahoma. Range throughout western Oklahoma.

This newly published species has been known but not properly named since 1926. It is common in the gypsum strip which runs from the Kansas line, through western Oklahoma to Texas. Its habitat overlaps that of *C. vivipara,* northward and is a neighbor of *C. neo-mexicana* in southwestern Oklahoma, although the latter is more wide spread in New Mexico. However, the unnamed species differed strongly from either *C. vivipara* or *C. neo-mexicana,* particularly in the color and shape of the flower-segments. A few people confused it with *C. aggregata,* a species native to Arizona. Finally it has been recognized as a distinct species and is now named *Coryphantha oklahomensis* after its native state.

Coryphantha oklahomensis sp. nov. Lahman.

Plantae caespiticiae; ramis 10-20 cm. altis, 8 cm. diametro; tuberculis viridis, 2 cm. longis; spinae laterales 16-20, gracilia albae; spinae centrales 6-7 brunneis; flores 4-5 cm. diametro, segmentibus exterioribus ciliatibus, viridibus vel albis; segmentibus interioribus roseis; stigmatis 9-10, marginibus revolutibus, purpureo-rubris; fila purpureo-rubris; seminibus nigris.

Officers of the K. I. O. Cactus Club

Mr. David Ferris, President; Mrs. Wm. B. Smith, Vice President; Mr. Wm. Bruton, Recording Secretary; Mrs. A. W. Light, Corresponding Secretary; Mr. Harold Ranshaw, Treasurer; Mr. Albert Wehrenberg, Tiler.

Sketches of Equipment

Now that several have volunteered to do art work for the Journal, send in your sketches of glasshouses, lath-houses, growing frames, window boxes, etc. This can be a valuable addition to the Journal if our members will cooperate.

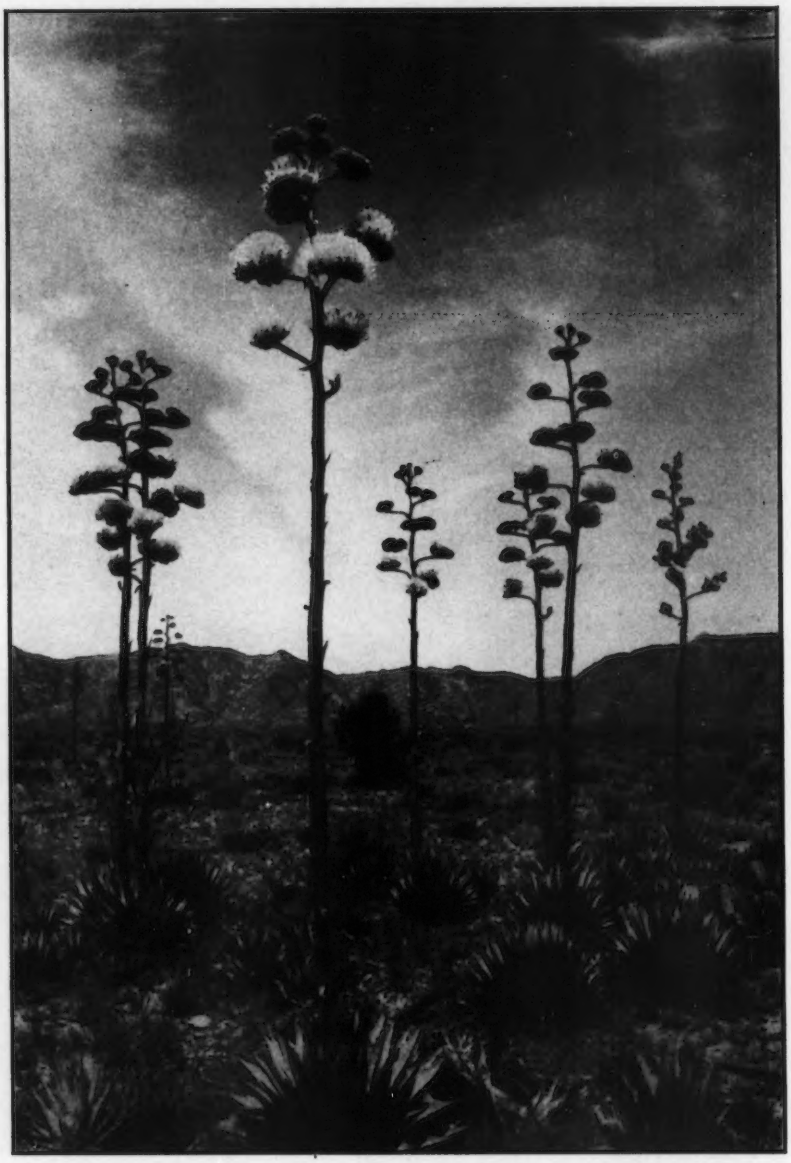


FIG. 108. *Agave Parryi* with the Guadalupe Mountains in the background.

THE MESCAL

By B. E. MCKECHNIE, Carlsbad, New Mexico

The Mescal or Century Plant is a species of Agave belonging to the Amaryllis Family. Its botanical name is *Agave Parryi* Engelmann variety *Neo Mexicana* Wooton and Standley. The name Century Plant is due to the mistaken idea that the plant flowers only once in a hun-

dred years. Actually, the time required varies from six to ten years according to the amount of rainfall. Moisture is stored up all of this time in the large rosette of thick fleshy leaves. In the month of June, when the plant is ready to bloom, the flower stalk shoots up to a height of 12 to 15 feet in two weeks time. The red buds are a distinguishing feature of this particular variety.

The bright yellow flowers, shown in Fig. 109 are favorites of the humming birds and also of a great variety of insects. They contain quantities of sweet, sticky, nectar which smells like cocoanut oil. If one shakes the flower stalk, the nectar will descend in a shower. The production of flowers and seeds draws all of the store of sap out of the leaves so that the plant dies after flowering.

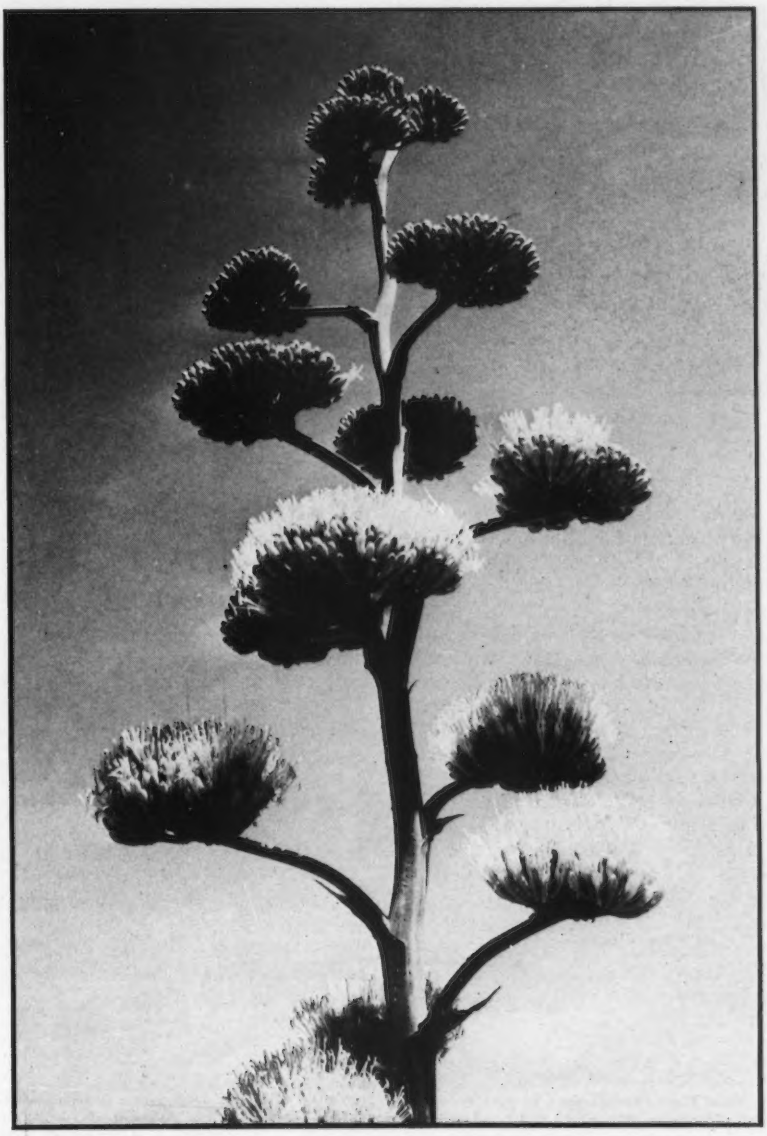


FIG. 109. Flower of *Agave Parryi*.

FIG. 110
Pit used by the Indians for roasting the Mescal buds.

Fig. 109, of the Mescal in flower, was taken on Highway 62 near Pine Springs, Texas, ten miles from the New Mexico state line. The altitude is 4500 feet with the Guadalupe Mountains in the background.

Fig. 110 is a view of a pit used by the Mescalero Apache Indians to roast the crowns of the Mescal plant (the name of this tribe was due to the fact that the Mescal formed an important part of their diet). The large stones used for lining the pit were cracked into small pieces by the heat and water. They were thrown out, thus forming the rings called Mescal pits. The remains of these pits are found over a large area of west Texas, New Mexico and Arizona.

Just before the flower stalk begins to grow, the plant contains a white crown the size and shape of a cabbage, full of sweet juice. The crown was removed in the following manner. A stout stick was sharpened to a chisel point which was placed against the base of the crown. The other end of the stick was pounded with a rock until the crown popped out.

A big fire was lit before daylight on a six-foot circle paved with large, smooth, flat stones. After several hours, the stones became very hot and the embers of the fire were raked off. The hot stones were covered with wet grass, preferably Bear Grass (Nolina), then the Mescal crowns were thrown in and covered with more wet grass. The whole pile was covered with earth and allowed to steam over night.

The cooked crowns were made into flat cakes, dried and stored for a future food supply. Before eating they were softened in boiling water. Sotol (Dasylirion) was roasted in the same way.

An intoxicating drink was made by macerating the roasted crowns in water, then permitting the mass to ferment.

Fig. 103 shows an unusual growth of a Mescal flower stalk. This shape is probably due to an excess of water.

TRANSPARENCIES WANTED

Larger than 35mm. Kodachrome or Ectachrome
1. Habitat pictures of cacti in the U.S.A.
2. Scenes featuring flora and fauna of Mexico and So. America.

●

Your Editor and Staff sends Greetings of the Season to each and every Society member.

SCOTT E. HASELTON

●

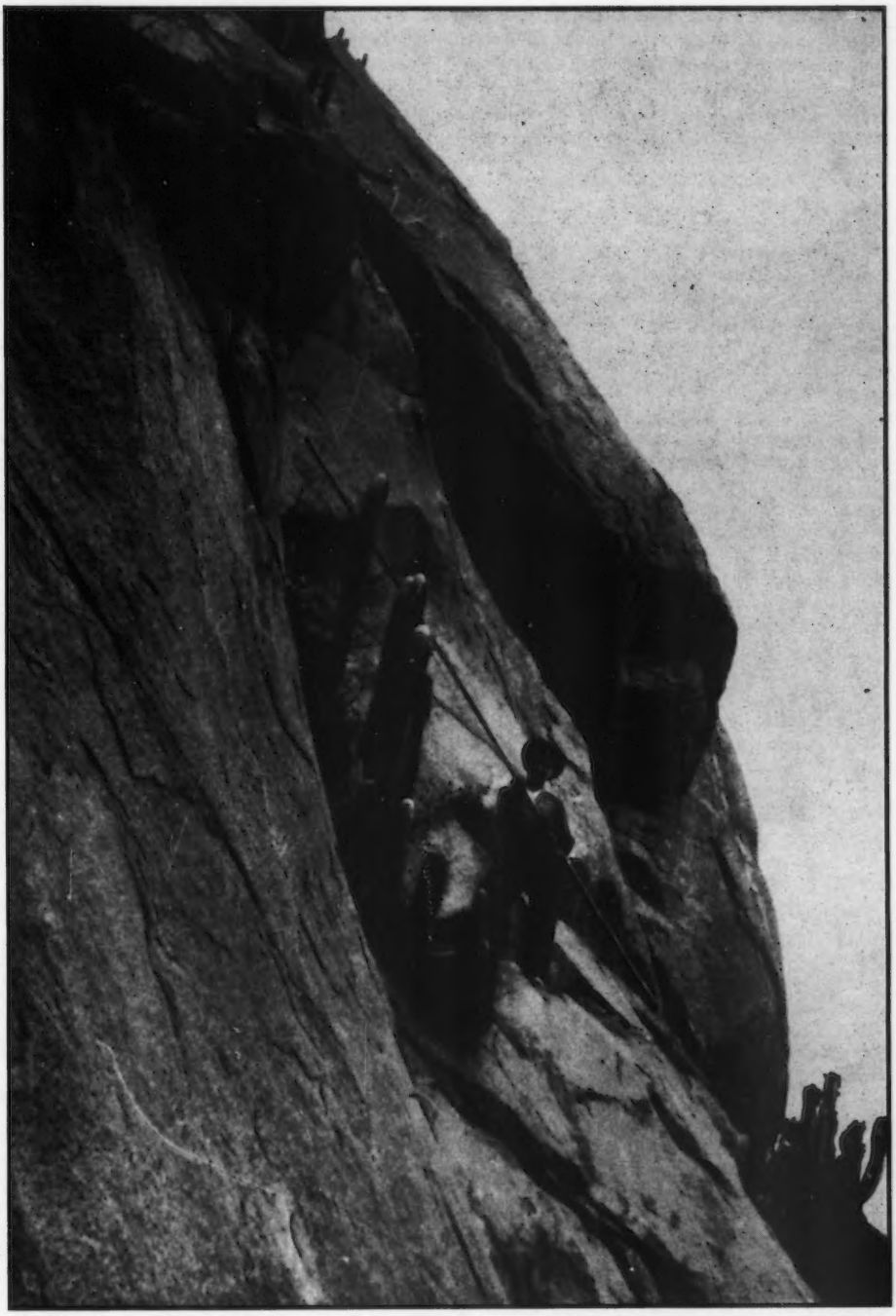


FIG. 112. *Pseudoespostoa* in the Andes, showing natural adaptation to rugged climatic factors. (From "Stachlig Wildnes" by Curt Backeberg.)

house plants as coleuses and begonias, when suddenly exposed to temperatures close to freezing, produces necrosis of the tips and frequently death of the plants. Damage is more pronounced in wet, poorly drained soils, as such conditions produce abundant water in the plant tissues. Dry, well-drained sandy soils promote scarcity of water with a corresponding increased tolerance to cold.

When germinating seeds of winter wheat, are chilled for certain periods they acquire a winter-hardiness; plants grown from such seeds, flower earlier and may be sown as Spring wheat. This technique of vernalization has a particular agronomic appeal to the Russians, for it enables them to produce reliable crops where the growing season is short because of frost or drought. The problems of vernalization are further complicated by the facts that the period of day length (photoperiod) and temperature and nutrition, have definite influences on flower formation. In greenhouses, the response of chrysanthemums to photoperiodism by the use of artificial lighting and shading to retard or accelerate bud formation, has made it possible to produce this crop the year round. For these plants, a minimum night temperature of 60° F. is essential for proper bud setting. After bud formation, they may be grown at lower temperatures and the period of blooming delayed, if this is desired.

As a rule, increased temperatures within physiological limits, hasten maturation. It has been shown that an unusual condition, such as reversed night temperatures, may so anatomically alter a plant as to prevent bud formation. *Euphorbia pulcherrima* (poinsettia), a short day plant, will not blossom in short days when the night temperatures are 75° F.

There is a definite relationship between age and resistance. Young seedlings are so sensitive to climatic changes that even a brief exposure to hardships may be fatal. At maturity, resistance is at its maximum and declines with old age. The intricate and complex chemical reactions which are governed by hormones are the controlling factors in age. Aging is due to diminished hormone productions and they are often the deciding factors whether one is young at 70 or old at 35. They are equally important to the plant and animal kingdoms. They control the rhythm of life from birth to death. Their benefits are collossal; their future possibilities stagger the wildest imagination. Many former mysteries of life, now have clear scientific explanations.

Although it is customary to obtain varieties and strains of plants that will possess desirable characteristics of quality and resistance through selection and hybridization, it is now recognized that the normal hereditary rhythm may be modified or suppressed by environmental factors such as temperature, light and nutrition.

Frost and heat resistance in plants have a definite relation to the nature of its sap. These qualities are inherited or modified by hardening processes. The sap contains salts, sugars and organic acids, and the presence of these substances in various proportions in solution, explain some of the factors of heat and cold resistance. The number of particles in a solution affects its freezing and boiling points. Acids, bases and salts in solution, dissociate or ionize into electrically charged particles called ions. A molecule of ordinary table salt (Na Cl, sodium chloride) in solution will furnish a positively charged ion of sodium, $Na+$ and a negatively charged ion of chlorine, Cl—. Such aqueous solutions of acids and salts are conductors of electricity and are called electrolytes. Sugar does not dissociate when it dissolves and is therefore a nonelectrolyte. An acid that dissociates easily produces a large number of hydrogen ions and is called a strong acid. An aqueous solution of an acid is strong because it ionizes to a high degree, whereas a concentrated acid is weaker because its degree of dissociation is limited.

The sap of cacti and other succulents contains salts, sugars and acids which have a marked influence on resistance to cold as well as heat because they act as electrolytes. Sulphuric acid is the electrolyte in a lead storage battery and the battery solution will not freeze when in full or high charge. The salts and organic acids by their ionization, lower the freezing point of the sap. They produce about three times as many ions as undissociated sugars. Sugar cane is very rich in sugar but thrives only in hot regions. Sugar maples apparently do not possess unusual resistance to cold. Starches are insoluble and exert no temperature effects. Acidity in plants is higher at night when the temperature is cool because of the increased solubility of carbon dioxide which produces carbonic acid.

In the rapid growth of plants in the early spring, the salts and acids enter chemically into new tissue production. The temporary loss of these substances reduces the osmotic pressure in the cells and water quickly enters to restore the turgidity. A sudden drop in temperature will easily freeze cell sap so diluted. In a hardening process under cool conditions, the consumption of minerals and acids into tissue formation is retarded and the plant cells become stronger electrolytes with higher antifreeze properties. Plants or trees lose considerable frost resistance after bearing heavy crops. Under such condi-

tions, the sugars, acids, salts and vitamins are reduced. There is a loss of vigor, and alternation of crop bearing becomes an economical compensatory measure. During the early period of recuperation from these deficiences, defoliation or abnormal pigmentations occur. Properly balanced fertilizers applied as needed, will eliminate such hazards.

In spite of all the factors mentioned, the fact remains that even in the desert, where the sap of succulent plants is highly acid with high osmotic activity, plants may freeze without damage. One may assume the existence of a further protective substance in the form of a hormone, which so affects the colloidal state of the complex protein in the protoplasm of the cells, as to prevent coagulation and subsequent disintegration on freezing.

During the process of hardening in plants, various reactions occur that enhance their beauty. The action of sun and wind, particularly so in dry weather, increases transpiration losses. This increases the degree of acidity of the plant sap and a variety of colorful tints are produced. *Echeveria pulvinata* has no brilliancy during the winter if the water supply is abundant, but if grown on the dry side in a cool temperature and in a sunny position, the leaves develop a beautiful rich red color due to anthocyanins in the sap. Many pigments increase their intensity with an increased degree of acidity.

In cool weather, there is considerable disintegration of chlorophyll which contains both green and yellow pigments. The circulatory removal of the decomposed thermolabile green pigments leave behind the thermostabile yellow xanthophylls. In the late summer and autumn, the warm sunny days promote sugar formation in excess to the physiological requirements, because of the lowered plant activity during the cool nights. Withholding plant foods during this period to aid winter hardening, also tends to increase the sugar content by lessening the food requirements that would ordinarily be used for new and active growth.

High sugar content may be instrumental in brilliant pigment formation, as sugars enter into the molecular construction of the anthocyanins. Maple foliage is very colorful in autumn. The hues range from purple to red when mixed with the chlorophyll pigments (green and yellow). In succulent plants growing in optimum conditions, pigmentation represents a defense mechanism by preventing excesive chlorophyll destruction in prolonged brilliant sunshine.

Color signs may represent health or disease. Phosphorus deficiency in a tobacco plant produces abnormally dark green leaves; the same deficiency causes purpling of the leaves in certain strains of corn. In chrysanthemums, nitrogen deficiency causes the tops to lose their dark green color, with a fading through stages from pale green to yellow. The lower leaves turn yellow, then brown, and die, but cling firmly to the plant. In potassium deficiency, the lower leaves show a marginal browning which is usually associated with chlorotic areas. Many diseases are caused by nutrient deficiences, in plants and animals alike. Coloration under adverse climatic conditions is due to an accumulation of the products of chlorophyll disintegration and other pigments in a sluggish circulation. The condition is somewhat analogous to the bluish coloration we may assume on exposure to cold. The chilling, by constricting the blood vessels, produces a vascular resistance which is responsible for the passive congestion of the dark venous blood.

The discussion of any phase of life involves many complex problems. Man has discovered the magic wand of science in the inner sanctum of the research laboratory. Its mere touch dispels the clouds of chaos and confusion. Its guiding light points out the way of progress. The trail is a most difficult one to blaze, as nature discloses her precious secrets reluctantly. There is a holiness in the light of knowledge for he is nearest God, who knows nature best.

DR. LOUIS E. BLANCHARD
P. O. Box 67, Crystal Beach, Ontario, Canada.

Roster of Collectors

If your subscription to the Journal does not expire with the December issue of 1949, please send us your name and address IF you wish to be listed in Dr. Berry's list of collectors or if you would like your name published in the Journal. If your Journal expires with the December issue, you will receive an expiration notice and suitable questionnaire.

Neale's Photographic Plates

With the new foreign rate of exchange, you may subscribe to "Neale's Photographic Plates" for $4.75 per year (9.50 for 1949 and 1950). You receive at least 48 plates each year with many added features for 1950. If you are collecting pictures of cacti and succulents, you should have this fine series. Every subscription from the USA means that some collector in England will be able to subscribe to our Journal—so you render a double service by taking advantage of this new low rate. Mail your order to Cactus Journal, Box 101, Pasadena, Calif.

African Wild Life Magazine

The Wild Life Protection Society of South Africa publish a quarterly magazine "African Wild Life." This 88 page magazine is packed with interesting articles on animal and plant life with emphasis on their preservation. All succulent growers should subscribe by sending 1 pound and 1 shilling direct to Box 1742, Johannesburg, South Africa, or $3.00 to Box 101, Pasadena, Calif.

Pereskia (Genus I of the Pereskieae and *Pereskiopsis* (Genus I of Opuntieae) are two of the leafy varieties of the Cactaceae. The genus Pereskia includes trees, shrubs, and vines. Pereskiopsis has trees and shrubs only. The leaves of both Pereskia and Pereskiopsis are shiny green (with one exception *Pereskia aculeata* var. *godseffiana*) thick, slightly leathery type of foliage. The stems while young are quite tender and break off readily. They are usually reddish green at first to protect them from the sun. Pereskiopsis is closest to the genus Opuntia but is called Pereskiopsis because it is Pereskia-like. The leaves of Pereskia have normal mid-rib and veining such as other trees and shrubs have. The Pereskiopsis has narrower leaves with no mid-rib and slight veining; it is doubtful if too many of these plants are grown to maturity even in the largest botanical greenhouses.

The species available, though limited, are all interesting. I have *Pereskia aculeata, P. aculeata* var. *rubescens* and *godseffiana, P. bleo, P. grandifolia,* and *P. sacharosa,* also *Pereskiopsis velutina, P. Porteri, P. chapistle, P. diguetti,* and *P. "aquosa"* along with several varieties mentioned by Britton and Rose.

The local names of "Lemon Vine," "Leafy Cactus" and "Wild Rose Cactus" are used by those who see my plants, The "Lemon Vine' and "Leafy Cactus" are both found in catalogues but "Wild Rose Cactus" seems strange since plants do not flower in our locality very often.

My plants have been kept too dry the last few years to say they bloom, but I did have *Pereskia sacharosa* bloom for over a month in 1944. The fragrant flowers were a beautiful rose pink. Buds and flowers proliferated from the scales on the ovary of other flowers. *P. aculeata* var. *rubescens* also bloomed the same year; plant was six feet tall and viny. The creamy white, fragrant blooms resembled the single rose. The ovary was covered with "prickles" which gives it the name of "Barbados Gooseberry." Britton and Rose also mention "Blade Apple' and "West Indian Gooseberry" as being local names used by natives where they grow. Late summer or early fall seems to be the flowering time around Ohio. The dried flower separates from the ovary leaving a hollowed out place in the top. Neither plant set seed.

The diseases that attack these plants are few—that I have discovered. Lean soils cause slow growth and yellowed leaves. Yellowish spots with black edges frequently appear but the use of potassium salts help to restore vigor to the plants. Potassium leaches out of the soil with excessive waterings. Fungus attacks the ends of new stalks as well as the leaves but only soils deficient in mineral ("soluable mineral") water. Too cool location causes the leaves to curl and drop. Mealy bugs will attack them but this type of plant is easy to keep clean. Of course I've only raised them for 13 years and besides this I like them so I'm prejudiced.

The Pereskias and Pereskiopsis are found growing wild in the tropical region of Mexico, South America, and the Caribbean Islands. The leaves suggest the moisture laden air and rich leaf mold soils where they grow.

I use a heavy type of soil with less sand, more pulverized clay and leaf mold than for most of my tropical cacti. The soil should retain moisture, supply plenty of mineral matter and "root support" for the heavy top stems and foliage. So far I've not lost any of the true species of either genus. A too close soil invites root guests. The blooming time according to the books is from early June through the summer.

Although I have used them as window garden and window sill plants, I now put them in my greenhouse. It's more convenient. They do not show up to advantage with the usual house plants but as individual specimens they cannot be beat. They root easily from cuttings and have been used as grafting stock. In fact the smallest section of a plant roots quite easily. Cuttings of *P. grandifolia, P. aculeata* and varieties *rubescens* and *godseffiana* are easily grown and although they do not bloom while small, they supply the foliage accents needed for window gardens. A single cutting of the latter, in a shallow blue bowl with purple crystals of fluorspar is a show piece. The golden yellow, apricot, cerise overlay of the top of the leaf with its purple cerise irridescent underside makes the picture a breath-taking plant display.

The flowers are attractive—at least those shown in books, as well as the two I've had in bloom. The long blooming period along with the fragrance and medium size of the flowers should put these two genera in the collections of most cactophiles.

The plant of the month is *Pereskia aculeata* var. *godseffiana** Br. and R., a sport of *P. aculeata.* It was found in Queensland, Australia, in 1908 growing among the normal type. It is an upright grower or at times a willowy stemmed plant with leaves of apricot, rose, yellow, and viridescent purples over yellow on top and reddish purple beneath. The leaves are either oblong or heart-shaped on the newer wood. The older stems lose their leaves and become quite like sticks with tassels. The older wood loses its purplish red and gold look and becomes woody and covered with brown bark. The flower is the same as that of *P. aculeata.* I have described my plant of the month as a window sill plant already so if I've not convinced you, it is evident you have not seen the plant. It is a beauty.

No doubt I keep too many Pereskias and Pereskiopsis and varieties but they are so easily kept in health both summer and winter that I acquire any and all when I see them.

JOHN E. C. RODGERS

BEGINNERS LIST OF "MUST" BOOKS

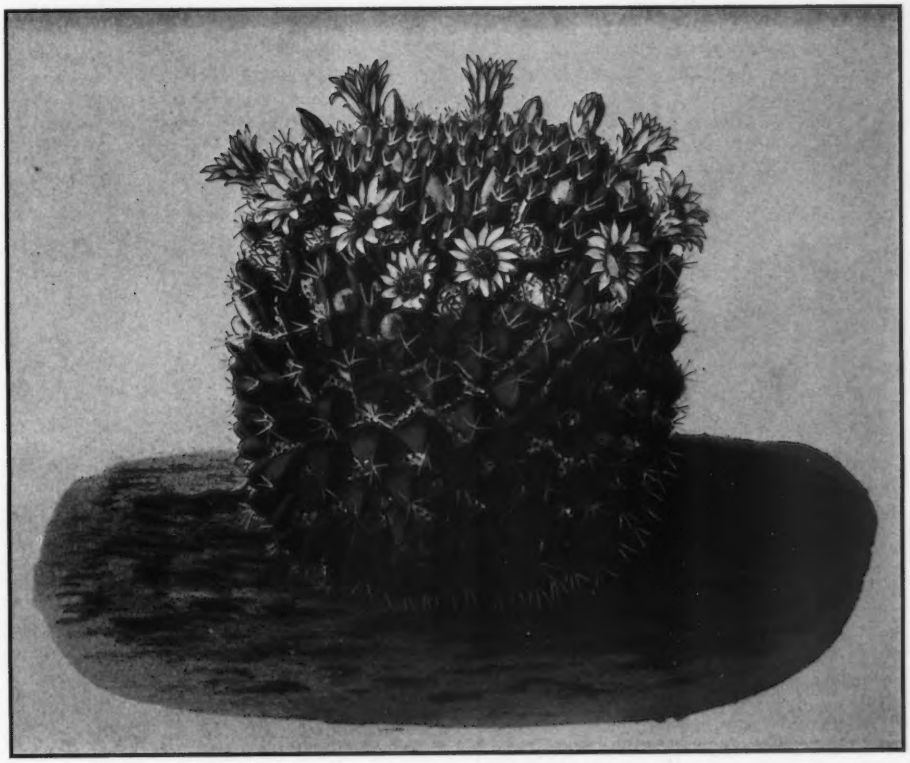
If an amateur will master the contents of these two small books he will have a general understanding of most of the plants in cultivation and will be able to derive valuable information from even scientific articles. To enjoy ones hobby one must make an earnest effort to learn all one can about the subject.

Cacti for the Amateur—Haselton. Postpaid $3.15, Foreign $3.20. Introduction to cacti with advice on starting a collection. Illustrated cultural information. 160 photos and color plate of 110 named cacti.

Succulents for the Amateur — Brown. Postpaid $3.15, Foreign $3.20. Introduces one to 800 best succulents with 400 illustrations of named species including a color plate of 75 beautiful succulents.

SCOTT HASELTON
BOX 101, PASADENA, CALIF.

*Jour. Vol. I, pg. 24 shows illustration.



Mamillaria pyrrhocephala Scheidw.

PLATE 20

From Blühende Kakteen—November 29, 1901.

Phyllocactus Gaertneri K. Sch.

PLATE 21

Phyllocactus Gaertneri K. Schumann, Natürl. Pflanzenfam. (edited by Engler), III (6a), 218; Gesamtbeschr., 220.
Epiphyllum Gaertneri K. Sch., Flora Brasil., 218.
Epiphyllum Russellianum var. *Gaertneri* Regel, Gartenflora, 1884, p. 323, t. 1172.
Epiphyllum Makoyanum Pynaert, Revue hortic. belge, 1889, p. 114.

This gorgeous free-blooming plant, which today is very widely cultivated in cactus collections, was discovered about 1882 in the neighborhood of Blumenau in the state of Sao Paulo, southern Brazil, by Gaertner, a man highly honored for his development of the south Brazilian German colonies; he sent it to Regel in Petersburg who, even after it bloomed, considered it to be a variety of the well-known and variable *Epiphyllum truncatum* Pfeiff. which is often seen as a house-plant. However, the whole manner of growth is so completely different from that of *Epiphyllum* that I realized it must not only be made into a separate species, but also taken from *Epiphyllum* and placed in the genus *Phyllocactus.* This change in its generic status has already been carried out in my work on cacti in the "Flora Brasiliensis." It is true that the genus currently known as *Phyllocactus* was there presented as *Epiphyllum;* I was obliged to substitute the latter name for *Phyllocactus* because of the rules of nomenclature followed in that work. But already in the following year, for reasons which will presently be discussed, I restored the name *Phyllocactus* and retained Epiphyllum only for E. truncatum Pfeiff.

If one chooses the flowers as the chief key to the classification of those cacti with leaf-like branches, then our plant must be placed in *Phyllocactus* on account of the regular radiating petals and because the stamens are not arranged in two rings as they are in *Epiphyllum.* I have always taken the position, and still do so today, that the characters derived from the flowers are the most important for determining the classification of *this group.* On the other hand I would not deny that in regard to the appearance of the plant itself *E. Gaertneri* is more nearly related to *Epiphyllum truncatum* Pfeiff. than to the remaining species in the genus *Phyllocactus.* Certainly one can return *Phyllocactus Gaertneri* to *Epiphyllum* if one wishes to stress the similarity of the branches—I have no objection to this act. I let it remain where it is because of the shape of the flowers.

As for *Phyllocactus Russelianus,* my knowledge of it has been inadequate to make a comparison with the above plant. By means of living material, Dr. Weber, in Paris, has now shown that its flowers are similar to those of *Epiphyllum truncatum,* which naturally seems to me sufficient reason for my returning it now to *Epiphyllum.*

Our plant tends to vary in the appearance of the bristles which are found on the truncate ends of the leaf-like branches. If they are numerous, long, and of a yellow-brown color, then we have met with the var. *Makoyana.*

The culture of this worthwhile plant presents no difficulties; grafted on *Pereskia* or *Opuntia* it grows luxuriantly and develops many of its scarlet- to brick-red pendant blossoms. It does not appear to hybridize with *Epiphyllum truncatum;* the results of such a crossing should offer a striking form. However, I have not herad of a successful attempt; *P. Gaertneri* seldom sets fruit.

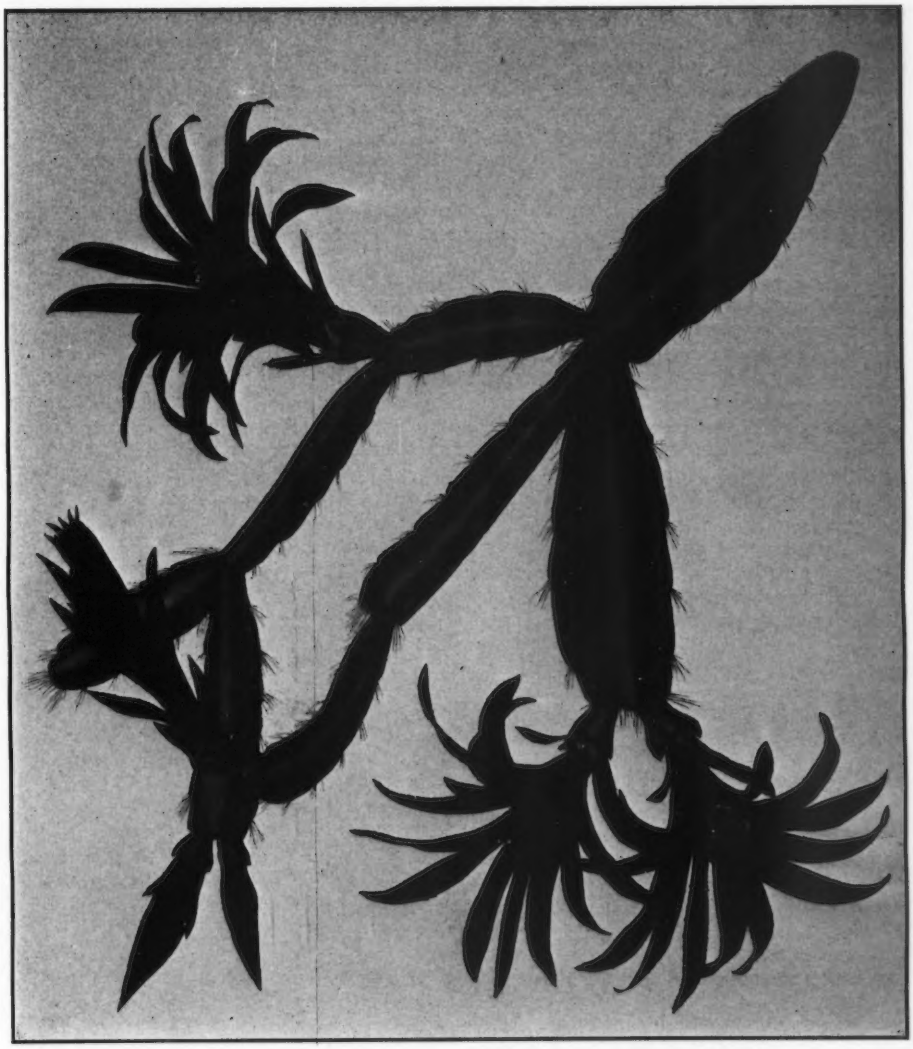
Translation by Myron Kimnach

CLASSIFICATION—1949

Notes by W. TAYLOR MARSHALL

Schlumbergera Gaertneri (Regel) Britton & Rose.

Lemaire first recognized the difference from the typical *Epiphyllum,* to which genus the plant was assigned, and placed it in the genus *Schlumbergera.*



Phyllocactus Gaertneri K. Sch.

PLATE 21

From Blühende Kakteen—March 25, 1902.

Echinocactus ingens Zucc.

PLATE 22

Echinocactus ingens Zucc., Pfeiffer: Enumeratio Cact., 54; K. Schumann, Gesamtbschr., 314.

The *Echinocactus* represented here in our illustration is in many respects an unusual and remarkable plant. In the first place we can see from the name *E. ingens* ("the Giant Hedgehog-cactus") that it represents one of the largest forms in the genus. In fact when completely grown, in its habitat on the Mexican tablelands (on the central plateau of Anahuac), it consists of a monstrous plant body with a height of up to 4 meters and with a diameter of nearly 1.5 meters. Such giants attain a weight of well over a ton. Even while middle-aged it gives the impression of senility; it becomes corky on the surface, loses its spines, and eventually, due to the weight of its heavy body, acquires ring-like swellings on the lower part. Later it often leans over, then falls, and at once begins to decompose; due to the extremely heavy water content of its tissue there is comparatively little residue left after it has dried away—and this is dispersed by the winds, so that of the once mighty giant there is soon hardly a trace left.

As to the fact that the plant tissue of the genus *Echinocactus* is so unfirm, there is a noteworthy characteristic concerning the genera *Cereus, Opuntia,* etc. These often develop a strong framework, usually with very firm and stiff stems, whereas in *Echinocactus* it is only the tension of the cells (turgor) of which the plant is composed that maintains its solidity.

We know of few species of *Echinocactus* that are so often described under new names. I have given 16 of these names in the "Gesamtbeschreibung" to which I refer the reader in order to avoid repetition. The reason for this surplus of names is quite obvious. *E. ingens* has the greatest diversity in the range of its forms and spination. Sometimes, and especially in seedlings raised by us, the ribs are broad, thick, blunt and articulated by depressions; sometimes they are flat, laterally compressed together and without articulations. Then there appear examples such as that represented in the plate, with powerful, annulate, sharply-pointed spines that soon diminish, being only borne singly at the areoles and which in time are lacking entirely.

It attains its ability to bloom comparatively late; in our collections the flowers are very rare and slow to appear. This behavior differs strikingly from that of the somewhat similar *E. echidna* P. DC. which blooms much earlier. Long before *E. ingens* begins to develop its flowers, the wool of those areoles about the crown begins to increase so that the enlarged areoles sometimes run together: thus the crown acquires a mass of wool. On old plants this mass becomes so large that the natives remove it from the crown and utilize it as stuffing for pillows. This circumstance has given it the name of "Visnaga de algodon." "Visnaga" is the Spanish and Mexican word for "toothpick" and I have previously expressed the opinion that possibly this word was derived from the Arabian "miswak" which also means "toothpick." The second part, "algodon," is the little changed Arabian word for "cotton" (al kutn). This capping of wool was the motive for von Karwinskys first placing the plant under the name of *Melocactus ingens;* Zuccarini soon showed that *E. ingens* possessed neither the genuine cephalium nor the flowers of *Melocactus,* and referred it to the correct genus.

In the Royal Botanic Gardens of Berlin rather numerous specimens of this species have been raised. They offer such a wide divergence in appearance that any casual observer not acquainted with the facts would never believe them specifically identical. Many are very old and were probably brought from Mexico by Poselger if they did not actually originate from Ehrenberg. One of these bloomed during the recent year and upon it the present illustration was based.

CLASSIFICATION—1949

Echinocactus platyacanthus Link & Otto.

Careful comparisons of mature plants in the field and in the collection of the Huntington Botanical Gardens prove that *E. ingens, E. grandis,* and *E. Palmeri* are mere forms of the first described species of *E. visnaga* should have varietal separation because of fruit structure difference. This was a considered opinion of the Nomenclature Committee of the Society.

QUESTIONS and ANSWERS

Conducted by
HARRY JOHNSON
Paramount, Calif.

Question: Sometimes the center rots out of a pot of Stapelias. Dr. Perry, Okla.

Answer: The cause is generally due to the original cutting dying. Since it is the only part of the plant below the ground, any overwatering is likely to affect it first. If the overwatering is continued the rot will travel to the rest of the plant. There is also a disease called "Stapelia Black Rot" which is probably of bacterial or fungal origin. The stems are pitted or checkered with black areas and the fine thread-like woody strands or vascular bundles near the center, through which the disease travels, are always black. This disease seems to enter the plant through the roots. It is not the same as normal brown rot but similar cultural conditions seem to cause either calamity.

The culture of Stapelias and related plants such as *Caralluma, Duvalia, Huernia, Hoodia, Piaranthus, Hoodiopsis,* etc., is quite simple after the fundamentals underlying their practice is understood. All these plants are from south of the equator (at least most of the ones you will find in cultivation). Thus their seasons are just the reverse of ours in the U. S. A. The first of January is not their middle of winter but the middle of summer. October is spring. March is fall. June, July and August is winter. They are going to do their best growing and flowering in September, October and November in spite of our wishes so we must modify our cultural practices to take the things we cannot change, into consideration. Fortunately Stapeliads are not stubborn nor too set in their ways and if led gently can, like the good horse, be induced to drink at the trough. So starting in September we may expect new growth to appear and buds to be shortly appearing either on the old growth or, as in Stapelias, on the young growth. In October and November there is a profusion of flowers. When the days begin to shorten and the cold grips hard, you had best close down on the watering, for the growth by this time should be partially matured. Thus during the winter you should rest them at about 50° to 60°. Lower temperatures above 32° for short periods won't kill them. Below 32° you are going to lose them. Yes I know some will stand 12° of frost. In spring as the weather warms up you can expect another period of growth and some flowers. This is a good time to put in cuttings. The best cuttings are the new growths. They do not need to be dried after cutting. Put them in sandy soil but keep on the dry side until the roots appear. You can look after the first two weeks to see how the base of the cutting is faring. If it is rotting, cut down moisture.

Normally they want to rest during July and August. However, they can be kept growing all summer, particularly your rooted cuttings or seedings. However, if you get too ambitious now you can lose them! If you want nice specimens and they show signs of wanting to rest why not let them rest by slowing up on the water during hot weather. At all times give the Stapelias plenty of fresh air. This is where the average window gardener stumbles. Water them only when the soil is dry. That does not mean dessicated. Too much water will surely kill them eventually although when they are in full growth they will seem to like it. However, if you keep soaking them, some morning you are going to find them a watery mass or rootless. In September, or during the summer if they are growing, a little fertilizer will do them good. They are fairly heavy feeders and in our sandy soils they do need the plant food.

Question: I recently lost a *Senecio scaposus* which withered up and rotted at the base. W. H. Whinfield, Canada.

Answer: Senecio scaposus is just beginning its new growth now (Oct. 24) with us. If the plant is established, and now is a good time to root them, I try to get new growth partially matured before the very short days of midwinter. In winter keep on the dry side and at reasonably low temperatures 40° to 50°. In spring they can be given more water. They flower for me in August. During July and August I keep them on the dry side in the lathhouse. They seem to need the summer rest.

Question: Should my *Lithops* flower now (September). Mrs. L. H. Swanson, Florida.

Answer: Lithops are in fullest flower from October 15 to November 30. I have many thousands in bloom now and they are a lovely sight. A few species such as *L. pseudotruncatella* and varieties bloom in the late spring or late summer. After flowering, keep on the dry side until spring.

EDITOR'S NOTE: Send your questions direct to Harry Johnson, Johnson Cactus Gardens, Paramount, California.

Study of Cacti—Higgins. Postpaid $3.25. Cactus names and classification explained. Distribution, uses and cultivation. Description of the main groups with an outline for a quick understanding of their relationship. Culture is dependent on a knowledge of the habitat of the plants. Box 101 — Pasadena 16

FIG. 113

Flowering plants of *Sedum Nevii,* left, from gorge of Ocoee River, C 6979, and right, from valley of Cahaba River, C 5706a. Plants cultivated in greenhouse at Ithaca, N. Y. Photo by W. R. Fisher, May 21, 1947.

The Distribution and Variation of Sedum Nevii

By ROBERT T. CLAUSEN

According to present information, *Sedum Nevii* is a rare species known from only three localities in eastern North America. These areas of occurrence, in the order of their discovery, are the valley of the Warrior River above Tuscaloosa, Alabama, the valley of the Cahaba River at Pratt's Ferry, Alabama, and the gorge of the Ocoee River in Polk County, Tennessee. R. D. Nevius discovered the species at the first-named locality in the spring of 1857. Charles Mohr first collected it at Pratt's Ferry in June, 1883. The colony in the gorge of the Ocoee River was found by A. Gattinger on June 20, 1888, and rediscovered by me, in company with L. J. Kezer and D. G. Huttleston, on April 11, 1947. I have visited both localities in Alabama and have collected and grown plants from all three places. C. H. Uhl (1947) has counted the chromosomes of plants from these three localities and determined the gametic number for each as six. Also, J. T. Baldwin, Jr. (1942), had earlier counted the chromosomes of plants from both localities in Alabama and determined the gametic and somatic numbers as six and twelve, respectively.

Species related to *Sedum Nevii* are *S. glaucophyllum, S. ternatum* and *S. pulchellum.* Some plants of *S. glaucophyllum* are difficult to distinguish from *S. Nevii;* juvenile plants and occasional adult plants of *S. pulchellum* have been confused with *S. Nevii;* but *S. ternatum,* with broader leaves usually in whorls of three, is easy to recognize.

The following table is provided to contrast the diagnostic features of these four species:

	S. Nevii	*S. glaucophyllum*	*S. ternatum*	*S. pulchellum*
duration	perennial	perennial	perennial	biennial or perennial
arrangement of leaves on floral stems	alternate	alternate	lowest always in whorls of three or rarely four, uppermost either in whorls or opposite, rarely alternate	alternate
bases of leaves on floral stems	truncately short-spurred	truncately short-spurred	truncately short-spurred	at least in part with sagittate spurs
shape of leaves on floral stems	linear or the lowest rarely linear-oblanceolate	spatulate, oblanceolate or linear-oblanceolate, the lowest always broadest above the middle	obovate-spatulate or elliptical	linear
ratio of thickness to width of leaves on floral stems	1:1-2 (rarely 1:3 in lowest leaves)	1:2-3.5	1:4-30	1:1-2 (1:3-7 in one colony only)
length of petals in mm.	3-5	5-8, very rarely as short as 4, averaging about 6	4-8, rarely less than 5	4-9, rarely shorter in abnormal circumstances
color of petals	white	white	white	pinkish white, pale pink or cyclamen purple
length of seeds in mm.	0.5-0.6	0.5-0.9	0.8-1.0	0.8-1.2 "0.73-1.4"[1]

S. Nevii has the lowest number of chromosomes and is the least widely distributed of these four species. Some taxonomic and geographical evidence suggest that it may be the primitive member of the group. It is a perennial confined to an area in the southern Appalachians which has been available for occupation by plants for an enormous long period, possibly since the close of the Paleozoic. The present known distribution is disjunct, the colonies being separated by distances of about 50 and 350 kilometers respectively. Each of the three geographical populations is slightly different morphologically, a condition which possibly is the result of long isolation. *S. pulchellum* and *S. glaucophyllum,* both of which are morphologically similar, have more continuous distributional patterns and differ from *S. Nevii* so slightly as to make reasonable there origin from it through amphiploidy, as suggested by Baldwin (1943, 1944). In shape and breadth of leaves of floral stems, as well as in length of petals and of seeds, *S. glaucophyllum* is intermediate between *S. Nevii* and *S. ternatum. S. pulchellum,* with pink flowers and two-spurred leaves on the floral stems, might have arisen from a cross between *S. Nevii* and some red-flowered species, such as *S. calcaratum* or *S. naviculare.* Such an hypothesis requires that the original hybridization occurred a long time ago and that the ranges of the parental species were different then. Eventually cytogenetical data

FIG. 114. Cliffs along highway in gorge of Ocoee River, habitat of *Sedum Nevii.* Photo by R. T. Clausen, April 11, 1947.

[1] Smith, Harriet E. in Bull. Torr. Club 73: 514, fig. 29 and 30 (1946).

may remove the guesswork from such theorizing. The specimens of *S. pulchellum* which most resemble *S. Nevii* occur on Panther Knob, a spur of Monte Sano, near Huntsville, Alabama. These plants are perennial with rosettes of spatulate basal leaves present at time of flowering. The leaves of the floral stems are broad for *S. pulchellum,* occasionally attaining a width of 3.5 mm. This population perhaps should have subspecific status. The colony at Monte Sano was discovered by R. M. Harper on Oct. 15, 1939, and studied in the field by me, in company with L. J. Kezer, in June, 1946.

Baldwin (1944) commented that the wider range of *S. ternatum* may be attributed to its greater age and earlier autotetraploidy. Unfortunately, no evidence was presented to support this statement, nor has anyone subsequently substantiated it. Chromosomal differences similar to those existing between *S. Nevii* and *S. ternatum* may eventually be effected experimentally. In this way, some suggestion of the course of evolution of genomes in these species may be gained. At present, the statement by myself and Uhl (Brittonia 7: 37. 1943) still seems correct, namely that "Cytologically the relationships of *Sedum Nevii,* with a haploid number of 6, are obscure." No evidence is available to show how it originated. Hypotheses, such as those mentioned above, about ancient hybridizations from which *S. glaucophyllum* and *S. pulchellum* may have resulted, with *S. Nevii* as one of the ancestral parents, still are not supported by experimental evidence or idiogramic testing, but eventually they may be. As yet the evidence is circumstantial. If *S. Nevii* really was one of the species involved in the production of the widespread and cytologically variable *S. pulchellum,* then it might be more ancient than *S. ternatum.* Another bit of evidence may be derived from the arrangement of the leaves. Possibly the whorled condition of *S. ternatum* is a derived condition, more advanced than the alternate arrangement in *S. Nevii.* I do not claim, however, to be able to settle the point as to which of these species is the more primitive.

As already mentioned, the plants in each of the three known areas of occurrence of *S. Nevii* are slightly different from those in the others. These differences are shown in the following table:

geographical area	Warrior River above Tuscoloosa, Tuscaloosa Co., Ala.	Cahaba River at Pratt's Ferry, Bibb Co., Ala.	Ocoee River, Polk Co., Tenn.
collection number	C 5755a	C 5706a	C 6979
shape of leaves of rosettes	spatulate	oblanceolate or spatulate	spatulate, elliptic-spatulate or elliptic-oblanceolate
length of leaves of rosettes in mm.			
extremes of length	4-10	9-18	2-13.8
average length	7	14	8.9
(no. of leaves on which average is based)	(185)	(218)	(834)
width of leaves of rosettes in mm.			
extremes of width	1.4-5	1-3.5	1-3
average width	3.29	2.5	2
(no. of leaves on which average is based)	(185)	(218)	(834)
thickness of leaves of rosettes in mm.	0.8-2	1-2	0.6-2.8
length of leaves of floral stems in mm.	6-9.4	8-31	8-13
width of leaves of floral stems in mm.	1-2.2	1.5-3.0	1
thickness of leaves of floral stems in mm.	0.8-1.8	1	1
length of sepals in mm.	2-3.4	2.5-5	3-4.5
width of sepals in mm.	0.8-1.4	1-1.5	1-1.4
length of petals in mm.	3-5	3-5	4-5
width of petals in mm.	0.8-1.4	1-1.5	1-1.4
length of stamens in mm.	2-3	2-4	3-4
length of nectaries in mm.	0.4	0.5	0.4
length of pistils in mm.	3.4	3-4.5	3

The plants from the Warrior River are from the area where R. D. Nevius originally collected the species. The leaves of the rosettes of these plants are relatively shorter and broader than in the other two populations. They are smooth on the margins, but minutely papillose at the apex. The plants from the Cahaba River are distinguished by having the leaves of the rosettes longer and narrower, but in papillosity similar to those from the Warrior Valley. The plants from the gorge of the Ocoee River have the narrowest leaves, but in length they are intermediate between the other two. Leaves of rosettes from the Ocoee Gorge, in cultivation at Ithaca, became prominently papillose. Figure 2 is a photograph of the rosettes of these three

but this has not been verified.

For funds in support of my trip to the gorge of the Ocoee River and to the herbarium of the University of Pennsylvania, I am grateful to the Faculty-Trustee Committee on Research of Cornell University. Also I wish to express appreciation to Miss E. M. Abbe for aid in measuring leaves of basal rosettes, to Dr. C. H. Uhl for counting chromosomes of my collections of *S. Nevii,* to Dr. R. M. Harper for information about his experiences with *Sedum* in Alabama and to Dr. J. D. Burfoot, Jr., and Dr. W. T. Holser for the identification of the slate from the Ocoee Gorge.

SUMMARY

Sedum Nevii is a rare perennial species native in the southwestern portion of the Appalachian Highlands where it is known from only three separate areas, namely the vallies of the Warrior and Cahaba Rivers in Alabama and the gorge of the Ocoee River in Tennessee. Plants from these three localities differ in small features, but probably should not be designated as subspecies since they may not truly indicate any broad pattern of genetic variation.

Dept. of Botany
Cornell University

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KEEPING UP WITH THE SPINES
G. L. Berry and Other Cactophiles

Our Convention King and Queen, the Barads, finally made it back to New York after what was reported to have been a wonderful vacation, and where King Gerald will get down to the grind of medical school again. The Queen writes about their cacti: "Our plants were in wonderful condition. They seemed to thrive under the weekly visit of our apartment superintendent. Sincerely yours, Beatrice Barad."

From one of our English members comes a request for correspondence with one or more cactophiles in this country. Wants to exchange views and ideas. Mr. W. W. Pickard, 40 London Road North, Lowestoft, Suffolk, England.

Mrs. Jennie Stevens, 13700 Carlbert St., Detroit, Mich., has had one of her experiments come to a head before she was expecting it. She writes: "Somewhere, last spring, I read an article about putting marble-sized pieces of very soft brick in cactus soil. To try it, I potted a Stenocactus with a lot of the 'marbles' in the soil and intended to let it grow until next spring before I looked, but during a recent windstorm, the cactus blew off the shelf and the pot was smashed. When I lifted it to see about the damage, I found the roots were wound tightly around the brick pebbles like string and some even seemed to grow right into the brick substance itself. The object, as I remember, was that less frequent waterings would be needed; the soft brick pieces holding the moisture for the roots."

Last month, Mrs. H. L. Huch, Chester, Ill., told us how she handles her hardy cacti out of doors in the winter. Now she writes about her tender ones in the summer: "My cacti are all planted in glazed or pottery pots but all have a drain hole in the bottom, however, and I find that they do much better if they are watered from below for the base of the plant can be kept dry while the roots have plenty of water.

"I use a rich loose soil. Our river sand has no food value but I do use it to loosen the heavy soil. Every spring when growth starts, I take off all the top soil that is not filled with roots and refill the pot with a mixture of leafmold and cow manure. Then once or twice each summer I feed them with liquid manure and a little Vigero is added to the soil but only very close to the edge of the pot, never around the base of the plant. I also water them twice a month with B-1 water (4 tablets to 1 gal.). *Parodia mutabilis* and *P. scoapoides* each had thirteen buds and six were open at one time so they must like it.

"I keep these tender plants on the front porch the year around. It is large (6 by 30 ft.), screened in summer and glased in in winter so it can be heated a little. I try to keep the temperature from going below 40 degrees if possible. All the plants are arranged around the porch on shelves so they get some sun and fresh air."

Mrs. Alice Dykes, Milwaukee, Oregon, really loves her cacti, judging from the care she gives them and which she outlines as follows: "When they are growing I feed them with B-1 at every watering, with plant salts every two or three weeks and with Johnson's cactus food once a month.

"During the summer most of them bloom. But in April and May, I have Epiphyllums in bloom, many with from twenty to forty blossoms ten or more inches across. Most of these are three or four years old.

"Have been bothered some with mealy bugs and for these I use a warm spray, made of water 1 pint, soap flakes ½ teaspoonful, Volck 2 teaspoonfuls and Black Leaf 40 about 10 drops. I usually do my spraying early in the morning before the sun shines on the plants.

"In winter I try to keep the temperature between 40 and 50 degrees and water about once a month (not so often for the desert kinds), letting the weather guide me as to the time of watering. Of course, the Epiphyllums are always kept moist."

One of the things that we amateur cactophiles don't do enough, is visit. We get so interested in our own little collection that we forget our neighbor in the next town who has some too. When we just collect for ourselves and do nothing of interest to other people, we are only hoarding our cacti, and I never heard

of a miser that got much pleasure out of his hidden gold.

If we visit other collections as we go places away from home, we make new friends and cactophile friends are swell friends to have for they are the kind that will give without a thought of receiving, whether it be a cactus or a kindness. Some of my best and most interesting friends are ones I have made talking "cactus." And you should read some of the letters I get from the folks who send in their reply questionnaires for the directory. They are hungry for visitors and letters from someone who can think catology.

Always, when we go to see someone else's collection, we should do more than just "Oh!" and "Ah!" We should help them name their unknowns and take notes for our own use so when we get home we can put a name on that plant that Aunt Mary sent us from California. Or we can jot down the name of the beauty that we want to order as soon as our budget will stand the pressure.

But, anyway, go visiting . . . stop along the way to see other people's collections, even the little window collections. You might be surprised at some of the rare ones you'll find in a window.

G. L. BERRY,
908 Arlington, Lawton, Okla.

CACTUS HUNT

. . . I am a member of a cactus club here in Cincinnati affiliated with the National Cactus Society. We have been trying to locate a certain cactus, to perpetuate the memory of a Mr. Krohn who died in December, 1948. He was a member of our club, and made it possible for us to have a cactus wing or house built on to the conservatory. This cactus was one that he was particularly fond of (*Melocactus intortus,* or Turk's cap) and we tried but were not able to obtain one in the U. S. At one time we could get it from Puerto Rico, but since the war the source has become exhausted so we had no success.

Now your March issue (*The Lesser Antilles of the West Indies*) showed a picture of Sam Lord's Castle on the Isle of Barbados and in front, on one side of the steps, was an urn, and planted in this urn was the very cactus we wanted. I wrote to Sam Lord's Castle and had a wonderful letter from the manageress and recently received that very cactus that the Club wanted. Its new home is the Irwin N. Krohn Conservatory in Cincinnati. I really thing HOLIDAY deserves some credit and thanks for making all this possible.

MRS. A. W. LIGHT
Cincinnati

EDITOR'S NOTE: The above was taken from "Holiday Magazine."

SPECIAL BOOK OFFERS

KAKTUSBOKEN—G. M. Eklund. Stockholm, 1935-1936. Two volumes in Swedish. The first deals with the history, morphology, and cultivation of cacti. 216 pages and 141 illustrations mostly from photographs. The second volume contains the descriptions of the genera and species. 213 pages and 133 excellent photos. Reduced from $4.75 to $2.50.

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NOTES ON HAWORTHIAS

By J. R. BROWN

Haworthia Greenii Bak. forma **pseudocoarctata** (Poelln.) Resende & Pinto-Lopes in Port. Acta Biol. II (1946) 191, fig. 16. *Haw. Reinwardtii* var. *pseudocoarctata* Poelln. in Beitr. Sukk. Kunde (1940) 43. *Haw. coarctata* var. *Haworthii* forma *pseudocoarctata* (Poelln.) Resende in Mem. Soc. Brot. II (1943) 84 fig. 33g.

Plant with stems 17 cm. or more, in length, 4.5-6 cm. diam., more or less erect, becoming decumbent in age; proliferous from the base.

Leaves 3-4.5 cm. long, 12-15 mm. broad towards the base, deltoid-lanceolate and terminating in a very short pellucid point, green, the young leaves paler green and shining; face of leaves smooth, back with many, small whitish tubercles in 8-12 lengthwise rows and in inconspicuous transverse rows, the tubercles only slightly elevated and most conspicuous, as in all the forms of *Haw. Greenii,* on the younger leaves.

This form of *Haw. Greenii* was described by Dr. von Poellnitz from a plant collected in the vicinity of Grahamstown, Cape Colony, but it is also recorded as being found at East London and Alicedale.

This Haworthia is probably the most attractive of the forms of *Haw. Greenii,* as it assumes, when grown in the open, a reddish-brown coloring in the upper part of the leaves, and especially at the tips, this color sometimes being cherry-red at the leaf tips. The tubercles also remain on the older leaves, unlike the other forms, on which they become more or less obsolete.

The plant of this Haworthia which is shown here, is in a vigorously growing state and thus the leaves are widely expanded.

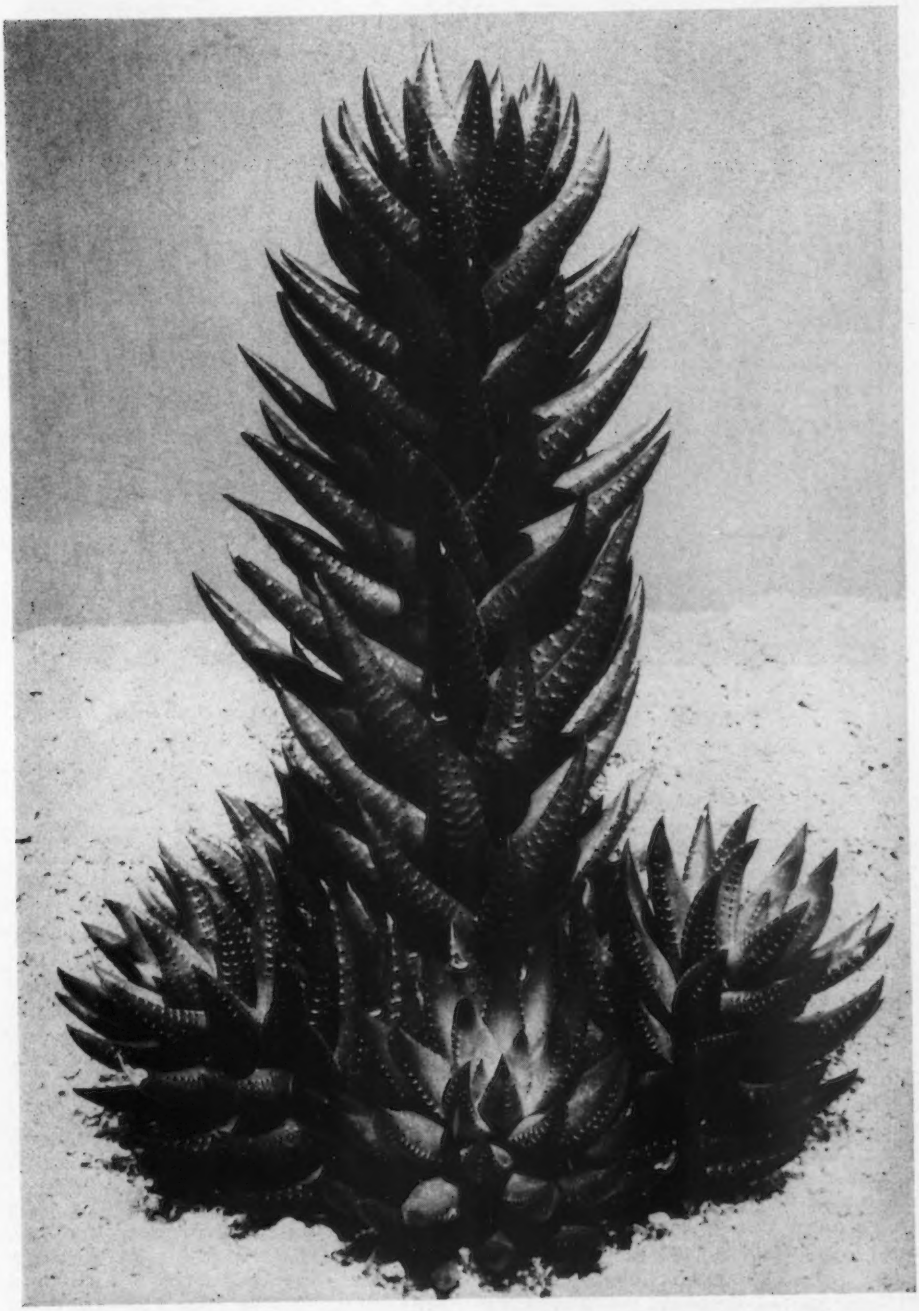

FIG. 117. *Haworthia Greenii* forma *pseudocoarctata* (Poelln.) Resende & Pinto-Lopes. Nat Size.

FIG. 118
Dudleya brittonii and *Agave Shawii.* Photo U.S.D.A. Dr. H. L. Shants.

DUDLEYA BRITTONII Johansen

By H. G. RUSH

Photos courtesy E. O. Orpet, Santa Barbara

Every once in a while someone brings in a new and interesting plant which immediately takes hold and becomes a favorite of many succulent plant collectors.

Such a plant was collected and brought in by H. E. Gates from along the west coast of Baja California, midway between Descanso and Ensenada. Mr. Gates at first thought the plant to be *Dudleya ingens* but the new plant differed from that species in size, being smaller, in the shape of the basal leaves, the character of the pulverulence (white insead of grayish), smaller size and simpler character of the inflorescence, and the color of the flowers.

Mr. Gates sent his material of this new plant to Dr. Donald A. Johansen, who was at that time working on a monograph of the genus *Dudleya* and Dr. Johansen described the new plant as *Dudleya brittonii,* dedicating it to Dr. N. L. Britton, one of the authors of the genus *Dudleya.*

Dr. Johansen had at first thought the plant might be the very poorly known *D. Bryceae* Britton, but it could not be that species because the leaves were certainly not "pale green, somewhat shining."

Dudleya brittonii is also quite distinct from *Dudleya pulverulenta* the rosettes of which are much the same size and coloration, but whose inflorescence is radically different.

The two photographs showing *Dudleya brittonii* at type locality, were taken May 27th, 1926, north of Ensenada, by H. J. Shants of the United States Department of Agriculture. These pictures show very clearly the form of the plant and give a clear idea of the size of the rosettes compared to the plants of *Agave Shawii* among which they grow. The plants are found

FIG. 119
Dudleya brittonii and *Agave Shawii*. Photo U.S.D.A. Dr. H. L. Shants.

quite well up on the bluffs along the ocean at the mouth of a canyon just north of the 32nd parallel.

Following is Dr. Johansen's description of *Dudleya brittonii* as published in the Cactus and Succulent Journal, IV, 311-312, 1932.

Dudleya brittonii

"Rosettes solitary on a short, stout caudex, the latter covered with withered leaves. Basal leaves numerous, erect or ascending, the younger ones linear-lanceolate, the older oblong-lanceolate and becoming much widened and somewhat swollen at the base, 7-11 cm. long, 4.5-5.5 cm. wide at base of older leaves, flat above the middle but convex on both sides below, with a submedian keel on upper surface and variously ridged on under surface, apiculate to acuminate, often with a red subulate tip, heavily white-farinose, the older leaves becoming deflexed and turning reddish-heliotrope with age (as in *D. pulverulenta*). Flowering stem (usually only one present) arising from withered leaves, erect, stiff but comparatively slender, reddish purple. Cauline leaves horizontal, very thin, mostly long-lanceolate, half encircling the stem, acuminate, light greenish-pulverulent, promptly withering but remaining attached. Inflorescence cymose, 10 cm. across but somewhat narrowed laterally, the branchlets vivid red. Pedicels erect, slender, 7-9 cm. long. Calyx 5 mm. long, cleft to just below the middle, the segments long-lanceolate, acute, bright green. Corolla erect, about 9 mm. long, cleft two-thirds to the base, the segments linear-lanceolate, mucronate, slightly keeled, hyaline or sometimes pale white, the keel showing a yellowish suffusion. Filaments subequal; anthers oblong to ovate, ca. 1 mm. long, maroon preceding dehiscence."

This plant handles quite well after being incorporated in the garden where I have grown it for thirteen years. My plant was collected at type locality in 1936 and has grown well and flowered often during the intervening years.

Dudleya brittonii, coming as it does from the bluffs along the coast is accustomed to the moisture of fog and so is not too hard to grow under ordinary garden conditions although it should never be watered over the top as this will wash off much of the powdery pulverulence which is largely responsible for much of the beauty of the plant.

ARIZONA CACTI

No. 6 of a series by R. C. PROCTOR, Phoenix, Arizona.

FIG. 120. *Echinocactus horizontalonius* growing in Pine County of Arizona. Average size plant is about six inches high and has a rose-pink flower. This plant is an "old-timer being first described in 1830.

SPINE CHATS

LADISLAUS CUTAK

Neoglaziovia variegata is a very interesting, long-leaved plant that grows wild on more than 20 millions of acres in northern Brazil. The stiff, banded, semi-cylindrical leaves look almost like some species of Sansevieria, and like it, produces a naturally white or light tan fiber which needs little bleaching. *The Brazilian Bulletin* of September 15, 1949, calls it "a wondrous fiber" and further states that this South American country now markets about 12,000 tons yearly of which 4,500 tons are bought by the United States. The plant is commonly known as Caroá and its fiber makes a sweat-resistant, long wearing cloth, excellent for suitings. Rope and cordage manufacturers claim Caroá is superior to manila and longer lasting. It has been used for airmail and other fine paper. Besides its economic value, the plant is quite decorative and easy to grow. It is recommended for pot culture. Our plants originally came from Mulford B. Foster of Orlando, Florida, in 1942. He had collected this species in Brazil and, as far as I know, he is the only one who handles it in the trade. I have also grown it from seed collected by Dr. Robert Schery of the Garden staff while he was stationed in Brazil during the war. In the seedling stages it is even more colorful for then the bandings are more pronounced. If you are looking for something new for your desert collection give a thought to this interesting bromel.

* * *

Susan Delano McKelvey recently described a new Agave from Arizona in the Journal of the Arnold Arboretum (30:227-230, July, 1949). She named it *Agave kaibabensis* for its locality, the Kaibab Plateau, on the north side of the Grand Canyon. The plant at first was thought to be *Agave utahensis* in colossal form as that species is common in northwestern Arizona but examination disclosed marked differences in the individual leaf, the leaf-rosette, and most important in the habit of the plant. *Agave utahensis* shows a tendency towards a panicled inflorescence and the species is caespitose, in all instances, often producing large and involved clumps. *Agave kaibabensis,* on the other hand, shows no tendency to produce offsets.

* * *

The flora of Costa Rica contained only one species of Agave until Howard Scott Gentry described the second one in the Allan Hancock Pacific Expeditions (vol. 13, no. 2, July, 1949). The new species hails from Port Baker, Salinas Bay, and is aptly named *Agave costaricana.* This new maguey is distinguished by its narrow linear-lanceolate leaves with minute marginal prickles along a straight margin, and by the small flowers with relatively wide linear perianth segments. It is said to be related to *Agave nivea,* from which it differs by its flat and shorter leaves, the unraised bases of the prickles, and the straight decurrent terminal spines.

* * *

Fascicle I, Volume 8 of *Gentes Herbarium* (May, 1949) was published to acquaint horticulturists with the reasons for recent changes in botanical names of certain cultivated plants, particularly as expressed in the new revised "Manual of Cultivated Plants." George H. M. Lawrence of the Bailey Hortorium is the author of these discussions, embracing some 82 pages. In the nomenclatorial case-histories that follow, the names of about 120 plants have been changed. These changes occur because of the "law of priority," of the so-called "homonym rule" and the misidentification on the part of some early botanists. Collectively, these three basic reasons account for nearly 85 per cent of the changes. Succulent plant fanciers may be interested to learn that the correct name for the plant commonly known and grown as *Aloe vera* is really *A. barbadensis* Mill. Then, too, the yucca of the Carolinas, Georgia and Florida long known as *Yucca filamentosa* is not the one so named by Linnaeus in 1753 and should, correctly, now be spoken of as *Yucca Smalliana* Fernald. Linnaeus' *Yucca filamentosa* is native of Virginia and North Carolina which has been parading about as *Y. concava.* Readers of the Cactus Journal have previously been informed, that *Sedum guatemalense* of the trade is not that species anymore but known now correctly as *S. rubrotinctum.* The fleshy-leaved "Little Pickles" plant with the small daisy-like flowers, known in botanical and most horticultural literature as *Othonna crassifolia* now becomes *O. capensis* Bailey. All this happened when Liberty Hyde Bailey pointed out in 1901 that the "Pickle Plant" is not what Linnaeus described as *Othonna crassifolia,* nor does it belong to Othonnopsis to which the Linnaean plant was transferred. In the absence of any available name for it Bailey gave it the new name of *Othonna capensis* and under this name the "Pickles Plant" will be called in the revised Manual. The well-known "Crown of Thorns," commonly cultivated and known for over a century as *Euphorbia splendens* Bojer will be replaced by the older name *E. Milii* des Moulins, which is the valid one for the species. This name antedates *splendens* by three years and according to Croizat "nothing can be done to rescue Bojer's well-known binomial (*Euphorbia splendens*) from synonymy.

* * *

The Reykjanes Peninsula is located in the southwestern part of Iceland. In 1936 and 1937 Emil Hadac of the Czechoslovak Expedition of Natural Science accompanied it for the express purpose of studying the vascular plants found there. His contributions to the "Botany of Iceland" has now been published as Part I of Volume V in Denmark in 1949. Over 250 species of vascular plants are enumerated, among the four species of Sedum, the only succulents in the lot. The stonecrops are *Sedum acre, S. annuum, S. Rosea* and *S. villosum.* The first two are rather rare, but the latter two are quite common.

* * *

That ubiquitous *Sedum acre,* a weed to many, had its uses. The rustics of England called it "Welcome home-Husband-be you ever so drunk" because growing on the roofs of the thatched cottages its bright blooms proved a guiding beacon to befuddled mates.

SPINE CHATS has now been coming to you for seven years and has gained the writer many friends. To all these faithful readers I offer my sincerest Christmas Greetings!

LADISLAUS CUTAK
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BOOK NOTES

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By Werner Engelhardt, Edited by Gertrude W. Beahm

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A NEW BOOK FROM ENGLAND

Succulent Plants Illustrated is the title of the new book by the well-known Vera Higgins, author of *The Study of Cacti* and many translations. There are 72 pages 7x10 inches including 24 full pages of drawings by the author; 130 different plants are illustrated so that beginners can quickly identify their succulents. For one handy with water colors, these plants are perfectly reproduced for hand coloring. The object of the book is to give some idea of the variety to be found amongst succulent plants, and because it is not always easy to picture a plant from a written description, illustrations are the chief feature. The accompanying text tells briefly how plants are related to each other, where they grow and how they can be cultivated. Copies are available for immediate delivery at $2.50 postpaid ($2.60 in California). ABBEY GARDEN PRESS, Box 101, Pasadena, California.

Backeberg's *B. F. K.* (*Blatter fur Kakteenforschung*). This bulletin of cactus research was published between 1934 and 1938 and contains 460 pages and 250 photos. Each cactus is described in English. The most valuable material since Britton and Rose. Absolutely necessary for those studying classification. Unbound; spring binders available soon.....$6.75, foreign $7.25

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